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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/599,314	09/02/2008	Takaki Sugimoto	59598US005	6786

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EXAMINER

BODAWALA, DIMPLE N

ART UNIT	PAPER NUMBER
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1791

NOTIFICATION DATE	DELIVERY MODE
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09/24/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/599,314	Applicant(s) SUGIMOTO ET AL.	
	Examiner DIMPLE N. BODAWALA	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 20-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 August 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/25/2006; 8/5/2008; 12/2/2009</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I, claims 1-19, drawn to a mold, in the reply filed on 9/2/2010 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Priority

3. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in JAPAN on 4/1/2004. It is noted, however, that applicant has not filed a certified copy of the JP 2004-108999 application as required by 35 U.S.C. 119(b).

Information Disclosure Statement

4. The information disclosure statement (IDS) submitted on 9/25/2006 is objected because Reference no. B1 cited on PTOL-1449, filed on 9/25/2006 is not correct foreign patent document number, and, therefore, Reference no. B1 is not considered by the examiner.
5. The information disclosure statement filed on 9/25/2006 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.
6. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information

submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper."

Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. **Claims 1-7, 12 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Slaughter, Jr. (US 5,462,702).**

9. Slaughter, Jr. ('402) discloses a flexible mold (31) comprises a support consisting of composite material layers (23,25, 27) of polymeric or resilient material (23,27), such as, Siliconized acrylic Caulk (See col.3 lines 27-36; col.4 lines 1-5); and a reinforcing material (25), such as, woven fiberglass or any sort of fibrous (See col.3 lines 51-57 figures 5-8; col.4 lines 9-25); and a shape imparting surface layer (23) is a microstructure including a groove pattern (31b) and protrusion pattern (31a) disposed on the support layer (See figure 8), wherein the shape imparting surface layer (23) is also cured resin material (See col.3 lines 43-44).

10. However, claim 14 of the instant application cites structural limitation with the intended use as further limitation of the subject matter, such as, **shape imparting microstructured surface layer for making barrier ribs**. As we know that if prior arts disclose all claimed structural limitations as discussed above, so the structural limitations of the arts are capable to operate in desired functions as required. Intended use has been continuously held not to be germane to determining the patentability of the apparatus, *In re Finsterwalder*, 168 USPQ 530. The manner or method in which a machine is to be utilized is not germane to the issue of patentability of the machine itself, *In re Casey*, 152

USPQ 235, 238. Purpose to which apparatus is to be put and expression relating apparatus to contents thereof during the intended operation are not significant in determining patentability of an apparatus claim, *Ex parte Thibault*, 164 *USPQ* 666. A recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations, *Ex parte Masham*, 2 *USPQ2d* 1647.

11. **Claims 1-2 and 8-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Armstrong et al. (US 4,233,396).**

12. Armstrong et al. ('396) discloses an invention related to make a flexible shaped article (See col.3 lines 7-27), wherein such article comprises composite material such as glass fiber reinforced polyester sheet (See example 1) as a support. It further teaches that the molded article may also be provided with a decorative surface or surface coating or lamination of embossed pattern (See example 4), wherein such statement indicates that the flexible mold or article comprises a shape-imparting surface layer disposed on the support as cited in claim. It further teaches that the composite comprises the reinforcing material in an amount of 5% to 60% or even 70% by weight (See col.4 lines 57 through col.5 lines 3).

13. **Claim 15 is rejected under 35 U.S.C. 102(b) as being anticipated by Kreuz et al. (NPL: Polyimide Films...).**

14. **Kreuz et al. (NPL)** discloses research on polyimide, which can be supplied in the form of films, fibers, resins, or coatings having bulk properties (See introduction), wherein such forms of the polyimide film enable to use as mold, wherein the polyimide film were adopted for applications in flexible printed circuits (See section 1.2). It further describes that the polyimide films are lower in-plane coefficients of thermal expansion, lower water absorption, such as <1%, lower coefficient of hygroscopic expansion (which is known as coefficient of hydroscopic swelling) (See NPL document attached herewith

defined term hydroscopic or hygroscopic), such as **1ppm/%RH**, higher adhesion, etc.
(See sections # 1.3 and 3).

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

17. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

18. **Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Armstrong et al. (US 4,233,396) in view of Hou (NPL: Stamp forming of continuous glass fiber reinforced polypropylene, published on 1/20/1997).**

19. **Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Slaughter, Jr. (US 5,462,702) in view of Hou (NPL: Stamp forming of continuous glass fiber reinforced polypropylene, published on 1/20/1997).**

20. Armstrong et al. ('396) discloses an invention related to make a flexible shaped article (See col.3 lines 7-27), wherein such article comprises composite material such as glass fiber reinforced polyester sheet (See example 1) as discussed above, but fails to teach or suggest that the support comprising composite of PP and glass fiber.

21. Slaughter, Jr. ('402) discloses a flexible mold (31) comprises a support consisting of composite material layers (23, 25, 27) of polymeric or resilient material (23, 27) and a reinforcing material (25), such as, woven fiberglass or any sort of fibrous (See col.3 lines 51-57 figures 5-8; col.4 lines 9-25), but fails to teach or suggest that the support comprising composite of PP and glass fiber.

22. Hou discloses a thermoforming technique for forming stamp (or known as mould) consisting of glass fiber reinforced polypropylene (See abstract; Introduction), wherein composite comprises glass fiber in an amount of 33 % volume (See section of Material).

23. It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the composite material of support of the flexible mold of **Armstrong et al. ('396)** and/or **Slaughter, Jr. ('702)** by providing glass fiber reinforced polypropylene as taught by **Hou (NPL)** because such composite material enable having enhanced tensile strength and flexural modulus, adhesion, toughness, etc. compared to the composite material of flexible mold of primary art, wherein demonstrated properties of the composite material (glass fiber reinforced PP) allows the user to design the material based on end-use requirements within a framework of cost, and, thus, enable to exhibit the designed article with excellent appearance and improved properties. The substitution of one known element for another yields predictable results to one of ordinary skill in the art. In this case, the use of glass fiber reinforced polypropylene of secondary art as composite material (such as resilient material and/or thermoplastic

material and reinforced material (fiber)) of support of flexible mold of primary arts would provide predictable results of coupling members effectively, see *In re Fout*, 675 F.2d 297, 213 USPQ 532 (CCPA 1982); *In re O'Farrell*, 853 F.2d 894, 7 USPQ2d 1673 (fed. Cir.1988); *Ruiz v. Chance Co.*, 357 F.3d 1270, 69 USPQ2d1686 (Fed. Cir. 2004).

24. **Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoyama et al. (WO 2004/010452) in view of Slaughter, Jr. (US 5,462,702) and further in view of Hou (NPL: Stamp forming of continuous glass fiber reinforced polypropylene, published on 1/20/1997).**

25. Yokoyama et al. ('452) discloses a flexible mold comprising a support (1) (See abstract), wherein support comprises suitable plastic material which may be used either as a single layered film or as a composite or laminate film of two or more kinds in combination (See page 8 lines 19-25). It further teaches that the mold comprises a molding layer (11) as a shape imparting surface layer disposed on the support (1) (See abstract), wherein the molding layer (11) having groove pattern (4) and protrusion (2) are formed of photo-curable resin (See page 5 lines 10-12; page 9 lines 12-19; and page 9 line 30 through page 10 line 9; figures 3-4). It further teaches that the molding layer (11) is substantially uniformly made of a curable material (such as curable oligomer or curable monomer), such as, photo-curable material (See page 10 lines 10-25; page 11 lines 4-12). It further teaches that the flexible mold is useful for manufacturing various microstructures (See page 13 lines 10-11; example 1), wherein such statement indicates that the shape imparting surface layer is microstructured as claimed.

26. Yokoyama et al. ('452) teaches that the support of the mold is a hygroscopic plastic film, such as, PET, PEN, stretched polypropylene, polycarbonate and triacetate, wherein the plastic film may be used either as a single layered film or as a composite or laminate film of two or more kinds in combination (See page 8 lines 19-25), wherein Yokoyama et al. ('452) fails to teach or suggest that a composite material of support consisting of a polymeric material and a reinforcing material as claimed.

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27. Slaughter, Jr. ('402) discloses a flexible mold (31) comprises a support consisting of composite material layers (23, 25, 27) of polymeric or resilient material (23, 27) and a reinforcing material (25), such as, woven fiberglass or any sort of fibrous (See col.3 lines 51-57 figures 5-8; col.4 lines 9-25), but fails to teach or suggest that the support comprising composite of PP and glass fiber.

28. It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the composite support layer of flexible mold of **Yokoyama et al. ('452)** by providing fiber reinforced polymeric material, in order to give complete dimensional stability for flexible mold which would be required to for the mold to function properly in the surface texture replication process (See col.3 lines 52-57) as taught by **Slaughter, Jr. ('402)**.

29. Hou discloses a thermoforming technique for forming stamp (or known as mould) consisting of glass fiber reinforced polypropylene (See abstract; Introduction), wherein composite comprises glass fiber in an amount of 33 % volume (See section of Material).

30. It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the composite material of support of the flexible mold of **Yokoyama et al. ('452) and/or Slaughter, Jr. ('402)** by providing glass fiber reinforced polypropylene as taught by **Hou (NPL)** because such composite material enable having enhanced tensile strength and flexural modulus, adhesion, toughness, etc. compared to the composite material of flexible mold of primary art, wherein demonstrated properties of the composite material (glass fiber reinforced PP) allows the user to design the material based on end-use requirements within a framework of cost, and, thus, enable to exhibit the designed article with excellent appearance and improved properties. The substitution of one known element for another yields predictable results to one of ordinary skill in the art. In this case, the use of glass fiber reinforced polypropylene of secondary art as composite material (such as resilient material and/or thermoplastic material and reinforced material (fiber)) of support of flexible mold of primary arts would

provide predictable results of coupling members effectively, see *In re Fout*, 675 F.2d 297, 213 USPQ 532 (CCPA 1982); *In re O'Farrell*, 853 F.2d 894, 7 USPQ2d 1673 (fed. Cir.1988); *Ruiz v. Chance Co.*, 357 F.3d 1270, 69 USPQ2d1686 (Fed. Cir. 2004).

31. Claims 15-19 are rejected under 35 U.S.C. 102(a and e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yokoyama et al. (WO 2004/010452).

32. Yokoyama et al. discloses a flexible mold is capable of easily and correctly manufacturing protuberance such as PDP ribs at predetermined positions with high dimensional accuracy, wherein the mold comprises a support made of a material having a tensile strength and containing a moisture to saturation at a temperature and a relative humidity at the time of use by moisture absorption (See abstract). It further teaches that the flexible mold is useful for manufacturing various microstructures (See page 13 lines 10-11; example 1), wherein such statement indicates that the shape imparting surface layer is microstructured as claimed. It further teaches that the mold comprises a molding layer having a groove pattern with a predetermined size and shape (See abstract). It further teaches that before applying moisture absorption treatment to the plastic film, a result of expansion of the film is about 300 to 500 ppm (See page 5 lines 18-22), therefore moisture absorption treatment is applied to the plastic film, so that moisture content of the film substantially reaches saturation, and, thus, the film can no longer absorb the moisture (See page 5 lines 27-30), wherein plastic film such as PET have moisture content (at 22C) is 30%RH-70%RH (See page 8 lines 30 through page 9 lines 5), wherein such statement inherently indicates that the mold comprised of a polymeric material (PET) is capable to have a coefficient of hygroscopic swelling per percent relative humidity in claimed range. If not, so as we know that the claiming of new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable, *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977), thus, in this case, unknown property (such as coefficient of

hydroscopic swelling) of PET film is inherently present in Yokoyama et al. based on %RH as discussed above.

Conclusion

33. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. (See PTOL-892 for further pertinent arts).

34. **Morio et al.** (JP 63-307908 A, cited by Applicant on PTOL-1449 form submitted on 12/2/2009) discloses an invention for preparation of resin mold comprises a thermosetting resin composition containing a metal powder or fibers as an essential component is used as a resin component for forming a mold cavity, wherein the metal powder or fiber in the thermosetting resin composition is preferably used in an amount of 20-70 vol.% (See abstract).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DIMPLE N. BODAWALA whose telephone number is (571)272-6455. The examiner can normally be reached on Monday - Friday at 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, PHILLIP C. TUCKER can be reached on (571) 272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. N. B./
Examiner, Art Unit 1791

/Philip C Tucker/
Supervisory Patent Examiner, Art Unit 1791